

Adaptive Drainage Slots for Acoustic Noise Attenuation, Phase I

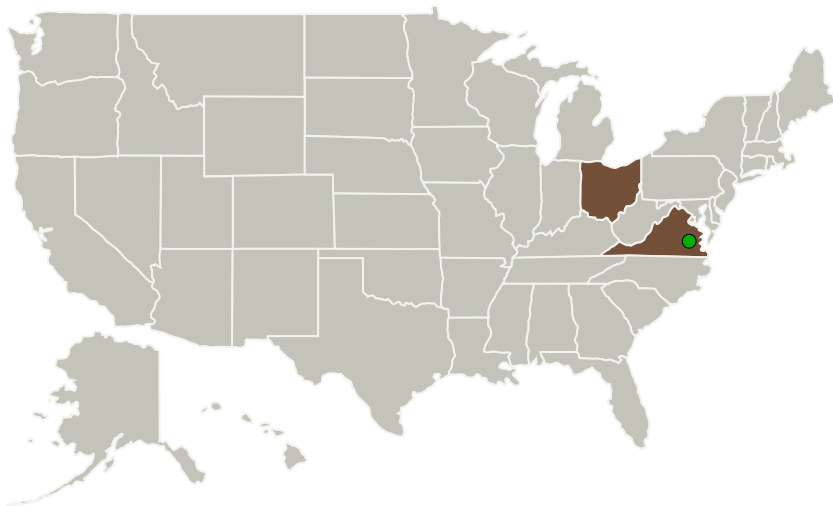
Completed Technology Project (2010 - 2010)



Project Introduction

Cornerstone Research Group, Inc. (CRG), proposes to demonstrate feasibility in the reduction of noise attributed to drainage slots in jet engine acoustic liners. This will be accomplished through the development of design rules for optimum slot design and the implementation of adaptive material technologies. CRG proposes to bring this technology to a technology readiness level (TRL) 2 after the Phase 1 effort and a TRL 4 after the Phase 2 effort. The proposed innovation lies in the recognition that drainage slots in the honeycomb of an acoustic liner may have a significantly adverse effect on its ability to absorb noise. This limits the ability of the acoustic liner to achieve its full potential. The proposed research will enable the acoustic designer to understand and to accurately model the effects of drainage slots on the acoustic impedance characteristics. It will also provide the impetus to find solutions that will counteract the adverse effects of drainage slots through adaptive means.

Primary U.S. Work Locations and Key Partners



Adaptive Drainage Slots for
Acoustic Noise Attenuation,
Phase I

Table of Contents

Project Introduction	1
Primary U.S. Work Locations and Key Partners	1
Project Transitions	2
Organizational Responsibility	2
Project Management	2
Technology Maturity (TRL)	3
Technology Areas	3
Target Destinations	3

Adaptive Drainage Slots for Acoustic Noise Attenuation, Phase I



Completed Technology Project (2010 - 2010)

Organizations Performing Work	Role	Type	Location
Cornerstone Research Group, Inc.	Lead Organization	Industry	Miamisburg, Ohio
● Langley Research Center(LaRC)	Supporting Organization	NASA Center	Hampton, Virginia

Primary U.S. Work Locations

Ohio	Virginia
------	----------

Project Transitions

**January 2010:** Project Start**July 2010:** Closed out**Closeout Documentation:**

- Final Summary Chart(<https://techport.nasa.gov/file/139936>)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Cornerstone Research Group, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Jason Hermiller

Co-Investigator:

Jason Hermiller

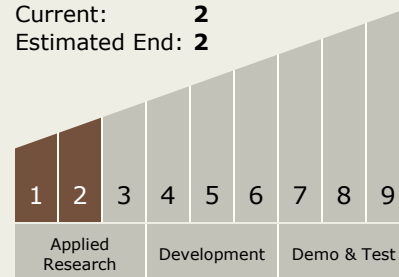
Adaptive Drainage Slots for Acoustic Noise Attenuation, Phase I

Completed Technology Project (2010 - 2010)



Technology Maturity (TRL)

Start: **1**
Current: **2**
Estimated End: **2**



Technology Areas

Primary:

- TX15 Flight Vehicle Systems
 - └ TX15.1 Aerosciences
 - └ TX15.1.4 Aeroacoustics

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System